

THE

Soybean Digest



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Silver Jubilee

SEPTEMBER 12 - 13, 1944
URBANA, ILLINOIS

Official Publication

OF

THE AMERICAN SOYBEAN ASSOCIATION

VOLUME 4 • NUMBER 10



AUGUST • 1944



There's Going to Be a THUNDERSTORM!

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But it's no worse than the thunderstorm in your business when the solvents fail to meet specifications for uniformity and throw production out of gear all along the line. For in solvents, if there's one thing you've *got to have*—it is *uniformity*.

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SKELLYSOLVE

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SOYBEAN INDUSTRY

The Skellysolve especially refined for the extraction of soybean oil not only gets *more oil* from each bushel of soybeans but, also, the extraction process is more favorable to the retention of nutritional properties of soybean meal. Skellysolve has the correct boiling range; is free from greasy residues, foreign tastes and odors. These qualities are essential to the success of the more efficient extraction method.

SKELLYSOLVE

SOLVENTS DIVISION, SKELLY OIL CO.
SKELLY BLDG., KANSAS CITY, MO.

THE Soybean Digest

GEO. M. STRAYER, Editor

KENT PELLETT, Managing Editor

Publishers' Representatives: Ewing-Hutchinson Co., Chicago

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AUGUST ☆ 1944

No. 10

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A Question Of Security

Not all speakers are good prophets, but Macey F. Deming spoke with considerable clarity in an address before the American Soybean Association as long ago as 1925, when he said: "It is as certain as anything can be that the world is drifting towards a colossal war over food supplies which cannot be averted by . . . any political agency."

At that time Mr. Deming, who had been prescribing soy milk to sick children in New York, was urging the widespread use of soy foods as a measure of national security.

That he had his eye on Japan was made clear when he pointed out that it was the wasteful methods of food production in the U. S. and Great Britain which were leading these two countries to look on Japanese dreams of empire as a threat to our security. The reason the Japs were able to underbid us in world markets was that they were more efficient in converting raw products into food and not merely their so-called lower standard of living. He said, "The wide difference between food costs on the west side of that ocean (Pacific) and on its eastern shores is due to the more efficient use of food in one country than in the other, and not to lower standards of nutrition."

According to the speaker, the general adoption of soy foods in America would mean "an enormous increase in food products will be made possible; the cost of food to industrial workers will be lessened and . . . the dread of being underlived by other races will disappear."

This might seem like a large order for the soybean, but with the arrival of the war that Deming predicted, we have accepted much of his advice almost 20 years after he offered it. We have a large acreage in soybeans, and nine-tenths of the crop is converted directly or indirectly into human food—directly through soy flour and oil, and indirectly through oil meal. It is now generally accepted that animal fats and proteins cannot compete

with the vegetable products when it comes to efficiency in production.

We have learned that food is a weapon of war, and that our national security demands the most efficient possible use of all our resources. This realization will insure that a place for soy foods will be retained in the American dietary.

— s b d —

AN INVITATION FROM OUR PRESIDENT

704 West Springfield
Champaign, Illinois

GREETINGS TO THE MEMBERS OF THE AMERICAN SOYBEAN ASSOCIATION:

The officers and directors of the American Soybean Association extend a cordial invitation to any and all persons interested directly or indirectly in the soybean industry, urging their attendance at the Silver Jubilee Conference, University of Illinois, Urbana, Sept. 12 and 13.

This Conference marks twenty-five years of progress, showing a growth from experimental growing to a five hundred million dollar annual business. A very outstanding growth. Of greatest importance is the future of the industry. This will be a conference subject.

The program arranged is well balanced, covering the many factors that enter into this rapidly growing industry; factors that challenge the best efforts and intelligence of every phase of the industry. There is ample seating capacity for at least 3,000 people at all sessions. We urge you to make a special effort to attend the Conference, built around educational presentations by men and women of ability in their respective fields. We are depending on YOU to be a part of the Silver Jubilee Conference—a Conference that will be interesting from start to finish.

Very sincerely yours,
J. E. Johnson, President.

— s b d —

Convention Travel And Lodging

HIGHWAYS. From the north and the south, U. S. 45; from the east and the northwest, U. S. 150; from the west and southwest, Illinois 10.

BUS SERVICE. From Chicago to Champaign and from St. Louis to Champaign: Greyhound Lines. From Des Moines and Davenport to Champaign and from Indianapolis to Champaign: Swallow Coach Lines and Illini Coach Lines.

RAILROADS. From the north and the south, Illinois Central Railroad; from the east and northwest, Peoria and Eastern Railroad (New York Central); from the east, northeast and southwest, the Wabash Railroad, Detroit and St. Louis via Tolono, Illinois, and Illini Coach Lines to Champaign.

LODGING. Please write for reservations as early as possible. Urbana-Lincoln Hotel, Urbana: (All rooms taken for these dates). Inman Hotel, Champaign: \$1.65 and up. Tilden Hall Hotel, Champaign: \$1.65 and up. Hamilton Hotel, Champaign: \$1.65 and up. Additional housing facilities available in private homes. Address requests for accommodations to Illinois Crop Improvement Association, Urbana-Lincoln Hotel, Urbana, Ill.

THE AMERICAN SOYBEAN ASSOCIATION

OFFICERS: President, J. E. Johnson, Champaign, Ill.; Vice President, Howard Roach, Plainfield, Iowa; Secretary, J. M. Strayer, Hudson, Iowa; Treasurer, J. B. Edmondson, Clayton, Ind.

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Make Your Hotel and Travel Reservations Now! American Soybean Association Silver Jubilee, University of Illinois, Urbana, Ill., Sept. 12-13

AUGUST, 1944

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URBANA - LINCOLN HOTEL

COMFORT-COURTESY
GOOD FOOD
COCKTAIL LOUNGE

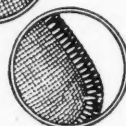


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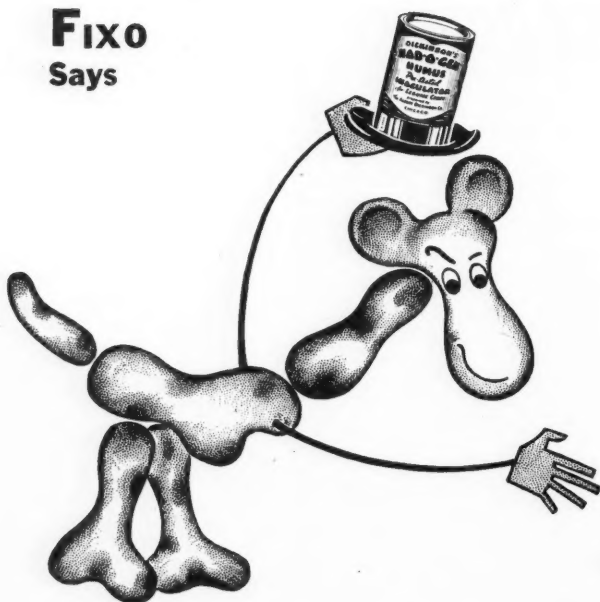
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WAR
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TO THE PANTRY SHELF



OR THE FEED LOT

There's a Bemis Bag for every Soybean need

FROM the time soybeans are harvested until they are consumed either as human food or animal food, there's a need for Bemis Bags as containers.

From the field to the processing plant, it's Bemis Cotton or Burlap Bags. Cotton, Burlap and Multiwall Bags are also preferred for soybean meal and cake for animal food.

For soybean flour, flakes and grits, rapidly growing in demand in kitchens throughout America, the proper containers, depending on the exact product, the shipping and handling conditions,

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Here are two further points of importance. Bemis' staff of packaging engineers is at your command. One of our representatives will gladly consult with you about your individual problems. And Bemis' twenty-three factories across the country provide your most versatile, most reliable source of supply.

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Bemis Multiwall Paper Bags, (available in pasted and sewn types, valved or open-mouth) are preferred for a wide range of processed products. Bemis has six multiwall bag plants.

WELCOME TO THE UNIVERSITY of ILLINOIS

● *It's time now to complete your plans to attend the Silver Jubilee meeting of the American Soybean Association at Urbana, September 12-13. See opposite page for complete program. You'll find the University of Illinois one of the world's leaders in agricultural research as well as many other lines.*

THE UNIVERSITY of Illinois is one of the leading universities of the world. The people of the state through their representatives and the general assembly have generously supported it since it appeared in 1868. Most people think of the University of Illinois as a great center of instruction for the youth of the state. That is correct. However, it is also an institution whose scholarly findings and whose research in the sciences play an important part in advancing the life and work of the people.

The University of Illinois plant and equipment are valued at more than \$43,900,000. The main campus at Urbana-Champaign includes 432 acres with 1,126 acres of experimental farms adjoining. Other farms are located in 20 some odd counties of the state. In addition, the colleges of medicine, dentistry and pharmacy and associated units are located in Chicago.

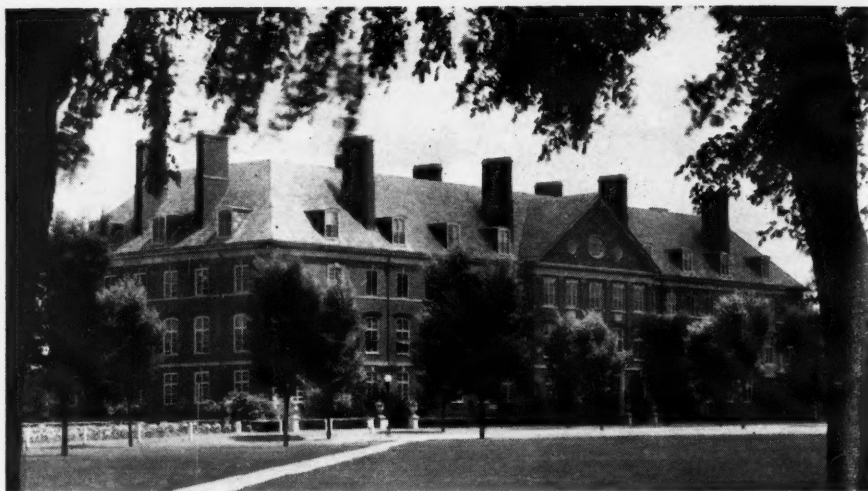
The University is divided into 15 colleges and schools for administrative and instructional purposes. There is now a plan under way to establish a new college of Animal Pathology. In addition, there are various research units on the University, cooperating and affiliated agencies and state agencies located on the campus, all working closely with the University.

The University Library is the largest of all state university libraries and fifth among all American educational institutions. It contains more than one and three-fourths million volumes, pamphlets, maps and pieces of music.

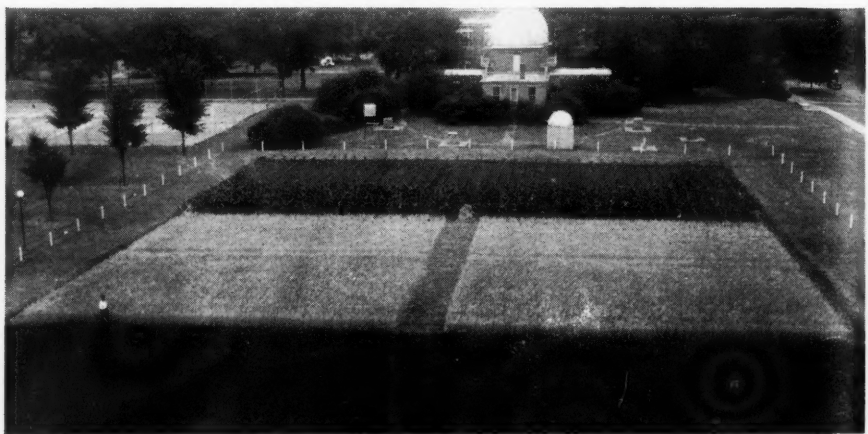
The next important expansion in the University's physical facilities will be an airport. Funds are already available for this project. It is expected that it will be a center for great programs of aeronautical research and instruction.

PIONEER IN COWS, SOYBEANS

The University of Illinois College of Agriculture is recognized as a pioneer in the fields of dairy cattle improvement, soybeans, crop breeding, improved feeding, control of animal diseases, farm accounting, and home economics. Members of the American Soybean Association are of course familiar with the contributions of Professors Burlison, Hackleman and Woodworth and their colleagues in the College of Agriculture in the development of the



At top, the new Agriculture Building, one of several buildings used by the College of Agriculture. Below, the Morrow Plots, the first soil experimental plots in America and the oldest corn experiment plots in the world, in continuous use since 1876.



soybean as a farm crop and its utilization in industry and as a human food. As a result of these efforts, Illinois is the leading state in the production of soybeans. Yields are relatively high and oil content maintained at a high level.

Other phases of farm life have received the same intensive attention of College of Agricultural scientists as have soybeans. The results of research work are carried to the farmers through the teaching of the College of Agriculture, through extension activities and through printed publications. Farmers have benefited immeasurably through the results of a very comprehensive agricultural educational program. No phase of farming has been left untouched—cultivation, erosion, soil treatment, improved crops, livestock and poultry, farm management and home life—all have received their fair share of attention. At the moment emphasis is being placed upon increasing wartime food, feed, fiber and fat, and making the most efficient use of the limited amount of available labor, machinery and fertilizers, and to stimulate interest in national and international problems and their solutions.

You will be interested in the accomplishments of some of the other divisions of the University. Some of the outstanding developments have been in the fields of con-

crete and reinforced concrete structures, the development of the world's first practical sound-on-film motion picture, and the development of the betatron which was perfected here. It is one of science's newest machines for smashing atoms and one of the most powerful sources of X-rays in the world. At the time of its development it was called the most important development in a decade in the field of atomic physics. The fatigue of metals has been the subject of extensive investigation at the University, and as a result machinery, including battleships, tanks and guns, is stronger and more trustworthy. Recently our chemists have contributed heavily to the war effort in the field of plastics, rubber and many industrial products. All sorts of materials have been inspected with the X-ray. Medicinal materials, including penicillin and other new developments are made more valuable because of the discoveries of the Illinois scientists.

It can be truthfully said that although one of the functions of the University of Illinois is the dissemination of information to students and adults throughout the state, to anyone who wishes to learn, members of the staff themselves continue to be students. The search for new facts, new information goes on day and night (365 days a year) in some of the laboratories at the University of Illinois.

The American Soybean Association's

Silver Jubilee

University of Illinois, September 12-13, 1944

PRELIMINARY PROGRAM — SUBJECT TO CHANGE

TUESDAY A. M., SEPTEMBER 12

(Auditorium)

W. E. Burlison, presiding

8:00 a. m. Registration.

9:00 a. m. Opening of the Conference, J. E. Johnson, President American Soybean Association, Champaign, Ill.

"Twenty-five years of Soybean Growing in America," W. E. Riegel, Farm Manager, Tolono, Ill.

"Creating New Kinds of Soybeans," C. M. Woodworth, Professor of Plant Genetics, University of Illinois

"Inoculation and Nitrogen Nutrition of Soybeans," A. G. Norman, Research Professor in Soils, Iowa State College

"Facts on Soybean Fertilization," A. L. Lang, Associate Chief in Soil Experiment Fields, University of Illinois

"Contribution of Machinery and Power to Soybean Production," E. W. Lehmann, Head of Department of Agricultural Engineering, University of Illinois

Luncheon, Illini Union

TUESDAY P. M., SEPTEMBER 12

Field Trip—Agronomy South Farm

1:30 p. m. "Soybean Machinery," R. I. Shawl, Professor of Farm Machinery, University of Illinois

"Soybean Storage," D. G. Carter, Professor of Farm Structures, Agricultural Engineering Department, R. F. Fuelleman, Assistant Professor of Crop Production, Agronomy Department, University of Illinois, M. D. Farrar, Research Entomologist, Illinois State Natural History Survey, and L. E. Holman, Agricultural Engineer of the U. S. Department of Agriculture

"Soybean Diseases," W. B. Allington, Associate Plant Pathologist, U. S. Regional Soybean Laboratory, Urbana.

"Soybean Insects," John Bigger, Associate Entomologist, Illinois State Natural History Survey, Urbana

"Soybean Varieties," J. C. Hackleman, Professor of Crops Extension, University of Illinois, and K. E. Beeson, Extension Agronomist, Purdue University, Lafayette, Ind.

"The Breeding Work of the U. S. Regional Soybean Laboratory," L. F. Williams, Associate Agronomist, U. S. Regional Soybean Laboratory, Urbana.

TUESDAY EVENING, SEPTEMBER 12

(Auditorium)

H. P. Rusk, presiding

8:00 p. m. Recognitions, W. L. Burlison, Head Department of Agronomy, University of Illinois

"The Place of Soybeans in the War Food Program," J. H. Lloyd, Assistant Regional Director, Commodity Credit Corporation, Chicago

"An Analysis of the Soya Food Situation," Donald S. Payne, Chief Soya Products Section, Grain Products Branch, U. S. Department of Agriculture, Washington, D. C.

"The Next Twenty-Five Years," Wheeler McMillen, President National Farm Chemurgic Council, Philadelphia

WEDNESDAY MORNING, SEPTEMBER 13

(Auditorium)

J. E. Johnson, presiding

8:00 a. m. Annual Business Meeting

9:00 a. m. "Nutritive Value of Soybeans," Gladys M. Kinsman, Professor of Nutrition, University of Illinois

"Problems in Using Soybeans as Food," Jean I. Simpson, Associate Professor of Home Economics, University of Illinois

"Utilization of Soybean Oil Meal as Feed and Fertilizer," J. W. Hayward, Director Nutritional Research, Archer-Daniels-Midland Co., Minneapolis, Minn.

"Utilization by Livestock of Soybeans and Soybean Hay," W. E. Carroll, Head Department of Animal Husbandry, University of Illinois

"What is the U. S. Regional Soybean Laboratory Doing?" J. L. Carter, Senior Agronomist, U. S. Regional Soybean Laboratory, Urbana

WEDNESDAY AFTERNOON, SEPTEMBER 13

(Auditorium)

Howard L. Roach, presiding

1:30 p. m. "Processing Soybeans," W. H. Goss, Head Process Development Section, Northern Regional Research Laboratory, Peoria, Ill.

"Utilization of Soy Protein in Industry," P. E. Sprague, Vice-president The Glidden Co., Cleveland, Ohio

"The Soybean Oil Rainbow," H. W. Galley, Manager Oils Division, A. E. Staley Mfg. Co., Decatur, Ill.

"Where to in Cornbelt Soybean Production," G. G. McIlroy, Farm Management, Inc., Irwin, Ohio

"Soybean Research—A Look into the Future," O. E. May, Chief of Bureau of Agricultural and Industrial Chemistry, U. S. Dept. of Agriculture, Washington, D. C.

★ FEEDING ★

Proteins On Pasture

Soybean oil meal, tankage, and combinations of protein concentrates were compared as supplements to corn and minerals for pigs on pasture in a series of experiments by W. L. Robison, of the Animal Industry Department at the Ohio Agricultural Experiment Station. The corn was ground and the feeds, including the

minerals, were mixed so that the different rations contained equivalent amounts of total protein and minerals. Self-feeding was practiced. The pigs fed soybean oil meal gained as rapidly but required a trifle more feed for each pound of gain produced than those fed tankage. There was little difference in the cost of the gains. The value obtained from the soybean oil meal was slightly more per pound of protein contained than that of the tankage.

With pasture, a plant protein feed successfully replaced all of the animal protein feed; a single protein concentrate was practically as effective as mixtures of plant or of plant and animal protein concen-

trates. If little or no pasture is available, feeding more than one grain and protein feed along with some leguminous hay, or other material which, like the green feed, will correct the nutritive deficiencies that would otherwise exist is advisable.

Full-fed pigs on pasture need about 0.4 pound of tankage or 0.6 pound of soybean oil meal daily a head. Since minerals are not particularly palatable, mixing them with the supplement or other feed is preferable to feeding them separately. Approximately 14 pounds of minerals should be mixed with each 100 pounds of soybean oil meal and half as much with each 100 pounds of tankage.

By EDWARD G. SCHIFFMAN

Senior Agricultural Economist
Farm Credit Administration

THE INCREASED war-time production of soybeans has been accompanied by a substantial expansion both in the number of soybean mills and in processing capacity.

On April 1, 1942, there were a total of 79 soybean mills in the United States, excluding those mills located on the west coast and in the southern states, some of which processed small quantities of beans. (Table 1) These mills had an estimated annual capacity of approximately 106 million bushels of which about 23 million was of the solvent type. By comparison, on July 1, 1944, there were 137 soybean mills, including those in operation, under construction, and the ones for which priorities had been approved prior to July 1, 1944, with an annual capacity of approximately 172 million bushels (Table 2) of which about 46 million is of the solvent type.

While it is too early in the season to predict with accuracy the 1944 production of soybeans, an estimate has been made using July 1 farmers intentions to harvest and a yield based upon longtime average conditions. (Table 2) On this basis a crop in excess of 192 million bushels can be expected of which approximately 160 million bushels should be available for processing. This leaves 32 million bushels to be used for seed, livestock feed, and for human consumption. Approximately 153 million

The Soybean

PROCESSING SITUATION

1944 - 45 Season

would be available for processing in the central area as compared with its estimated capacity of 170 million bushels. It should be remembered however that some of this capacity will not be available before the early part of 1945 and to this extent comparisons for the crop year are inadequate.

Some indication of the excess capacity situation likely to prevail in the post-war period can be had from these figures. While the quantity of soybeans that will be available for processing after the war cannot be accurately predicted we do know that during the 5-year period, 1937-41, the average quantity processed was approximately 55 million bushels per year. Obviously, if the quantity processed in the post-war period returns to a level approximating that of pre-war years a considerable contraction of the industry will be necessary

if reasonable efficiency is maintained.

With or without a reduction in soybean production in the post-war period a major maladjustment will exist in the relative economic efficiency of solvent and screw press type mills. Some limited concept of the disadvantages under which screw press mills will be operating can be had from the processing margins provided for in the 1944 processor contract of the Commodity Credit Corporation. Solvent extraction plants with a capacity of less than 3,000 bushels per day pay \$2.257 per bushel for beans purchased from Commodity Credit Corporation as compared with \$2.108 per bushel for mills of the same size equipped with modern screw presses, or \$0.149 more per bushel. These solvent extraction plants are allowed a processing margin of \$0.40

(Continued on page 20)

TABLE 1.—SOYBEAN MILLS BY TYPE, AND NUMBER OF SCREW PRESSES, BY STATES, APRIL 1, 1942 AND JULY 1, 1944

State and Area	Total number of mills		Number and type mill, July 1, 1944			Total number screw presses	
	April 1, 1942*	July 1, 1944†	Screw press only	Solvent only	Solvent and screw press	April 1, 1942	July 1, 1944
Central area:							
Colorado	2	1	1	---	---	2	1
Illinois	*23	31	24	3	4	179	209
Indiana	*6	12	10	1	1	37	46
Iowa	*15	33	23	9	1	42	85
Kansas	2	8	7	1	---	4	14
Kentucky	*3	4	3	---	1	10	15
Michigan	*3	4	1	3	---	---	1
Minnesota	2	7	5	2	---	4	16
Missouri	4	7	7	---	---	15	24
Nebraska	2	4	4	---	---	6	14
New York	2	2	2	---	---	9	9
North Dak.	---	1	1	---	---	---	2
Ohio	†*12	†17	15	1	1	60	72
South Dak.	---	1	1	---	---	---	2
Wisconsin	*1	†2	1	---	---	---	1
Total	77	†134	105	20	8	368	511
Eastern Seaboard area:							
Delaware	---	1	---	1	---	---	---
Maryland	†1	†1	1	---	---	6	6
New Jersey	---	---	---	---	---	---	---
Pennsylvania	1	1	1	---	---	1	1
Total	2	3	2	1	---	7	7
Total	79	†137	107	21	8	375	518

*Of these mills all are equipped with screw presses only, except as follows: Solvent type only—Illinois, 2; Iowa, 2; Michigan, 3; and Ohio, 1. Solvent and screw press type—Kentucky, 1; Illinois, 3; and Indiana, 1. Hydraulic press type—Illinois, 2; and Wisconsin, 1.

†Includes mills in operation, under construction, and those for which priorities had been approved prior to July 1, 1944.

†Includes one converted copra mill.

†One mill equipped with hydraulic presses.

TABLE 2.—ESTIMATED SOYBEAN PRODUCTION, QUANTITY AVAILABLE FOR PROCESSING, AND PROCESSING CAPACITY, UNITED STATES, 1944-45 SEASON

Area and State	Acreage intended for beans 1944*	Yield per acre†	Estimated production 1944	Estimated quantity available for processing 1944-45†	Estimated processing capacity‡	Excess or deficit (-) capacity
	1,000 A.	Bu.			1,000 Bushels	
Central Area:						
Colorado	---	---	---	---	138	138
Illinois	3,444	20.5	70,602	62,329	67,546	5,217
Indiana	1,572	17.0	26,724	21,869	16,341	-6,528
Iowa	2,017	19.0	38,323	32,857	33,547	690
Kansas	203	11.0	2,233	1,835	4,246	2,411
Kentucky	74	12.0	888	412	6,059	5,647
Michigan	105	14.5	1,522	1,060	1,488	428
Minnesota	209	15.0	3,135	2,429	4,984	2,555
Missouri	684	12.5	8,550	7,140	6,473	-667
Nebraska	41	12.5	512	400	3,336	2,936
New York	13	14.5	188	-12	2,380	2,392
North Dakota	5	12.0	60	40	554	514
Ohio	1,343	19.5	26,188	22,814	22,636	822
South Dakota	9	13.0	177	86	554	468
Wisconsin	78	15.0	1,170	812	879	67
Total	9,797	18.4	180,272	153,071	170,161	17,090
Eastern Seaboard Area:§						
Area:§	151	13.4	2,027	1,058	2,072	1,014
Southern Area:**						
Area:**	905	11.4	10,335	5,699	††	††
United States	10,853	17.7	192,634	159,828	---	---

*As of July 1, Bureau of Agricultural Economics.

†Expected as based on long-time average conditions.

‡Estimated production less average quantity used for seed and feed from 1942 and 1943 crops and estimated quantity to be used for full fat flour and other uses.

§Includes capacity of mills in operation, under construction, and those for which applications for priorities for processing equipment had been approved prior to July 1, 1944.

||Includes Del., Md., N. J., and Penna.

¶Does not include any capacity in linseed mills some of which have processed soybeans.

**Includes Ala., Ark., Ga., La., Miss., N. C., Okla., S. C., Tenn., Tex., Va., W. Va.

††Capacity in cottonseed mills greatly in excess of needs.

SOYBEANS *for* the SOUTHWEST

● Interest in oil-bearing soybeans is increasing in the southwestern states. An excellent survey of soybeans and their possibilities in the Southwest by the agronomist at the Oklahoma experiment station. From an address before the Southwestern Regional Chemurgic clinic.

By HI W. STATEN

Professor of Agronomy, Agricultural Experiment Station, Stillwater, Okla.

THE SOYBEAN seems to be peculiarly sensitive to changes of soil and climate. Differences in the behavior of a variety in different localities are often so striking as to make it appear like another variety. In general, the climatic adaptation of the crop is about the same as for corn. The crop is especially adapted to the northern half of the Cottonbelt and the southern half of the Cornbelt. After the plant is well started, it withstands short periods of drought, and wet seasons do not seriously retard growth or decrease yields. The period of germination is the most critical stage, when excess moisture or prolonged drought is likely to be injurious. It is less susceptible to frost than are cowpeas, field beans and corn, light frosts having but little effect on the plants when young or when nearly mature.

The soybean will succeed on nearly all types of soils, the best results being obtained on the mellow fertile loams or sandy loams. In general, the soil requirements are about the same as those for corn, but the soybean will make a more satisfactory growth than corn on soils of low fertility, provided the inoculating organisms are present. It must be recognized, however, that soybeans grown for grain are a "good land crop." This is contrary to the often prevailing opinion that grain soybeans will make profitable yields on low-fertility soils. It is evident from this discussion that soybeans should not be considered a "poor land" crop. Just as with other crops, high yields can only be obtained on soils in a good state of fertility. This point is especially important in the Southwest where soil moisture is the primary limiting factor in crop production.

After this brief discussion, I will now give consideration to the possibilities of soybeans in the southwestern states, namely Kansas, part of Missouri, Arkansas, Louisiana, Texas, Oklahoma, and eastern New Mexico and Colorado. The climatic factors for crop production in this large area are quite variable. The average annual rainfall varies from 15 inches in the west to more than 50 inches in the eastern section. The altitude ranges from sea level to over 6,000 feet. Other natural factors which must be given serious consideration in soybean production are summer rainfall, length of growing season, temperatures, hot winds, evaporation, and humidity.

INCREASE JUSTIFIED

Most of the experiment stations of this southwest area report 20 to 25 years of historical data in soybean research. In summarizing these reports, there is a general trend toward a larger acreage of soybeans for oil. This is especially true in the states of Kansas, Missouri and Arkansas. The other southwestern states have not, in

the past, grown a very large acreage of oil beans. The general plantings have been for forage and soil building. During the past two years, however, there are signs of increased interest among farmers. This is especially true in Oklahoma, Louisiana, and Texas. The western semi-arid states have not given much attention to soybean production.

The state of Kansas reports further increase in the acreage of soybeans is justified in the eastern one-fourth of the state. Missouri reports successful production of soybeans as a grain crop is vitally important now from the standpoint of war needs and requires quite different consideration from growing the crop as a hay. The sharp upturn in the need and prices has stimulated interest in growing soybeans for grain. Arkansas and Louisiana report definite trends towards increased acreages. The following summary of production trends as of 1943 and goals of 1944 for the southwestern states are cited:

State	1943*	1944 Indicated for beans**	Pct. of 1943
Kansas	244,000	183,000	75
Missouri	561,000	569,000	101
Arkansas	267,000	283,000	106
Louisiana	41,000	68,000	166
Texas	25,000	12,000	48
Oklahoma	10,000	6,000	60

* Harvested acres.

** 1944 prospective acreage alone (B.A.E. Prospective Plantings Report) plus 1/2 of 1943 interplanted acreage by states.

The summer drought of 1943 perhaps is largely responsible for the decreased acreage in some of the southern states.

Research data from the various experiment stations definitely points out the hazards encountered in attempting to expand soybean production into the semi-arid sections. A possible exception is in areas where the crop can be irrigated. During the period of 1924 to 1934, the Oklahoma Experiment Station made test plantings of soybeans in all sections of the state. These plantings were located at Granite, Goodwell, Lone Grove, Pauls Valley, Purcell, Carrier, Eufaula, Durant, Okmulgee, Sapulpa, Nowata, McAlester, Heavener, and Stillwater. This widely-distributed research program, which includes many variable climatic factors, is now being used as the basis for present research emphasis.

CLIMATIC SECTIONS

When one summarizes the data of the historical work in the southwestern region here considered, the entire area can be divided into three general climatic sections for probable commercial soybean production. The climatic factors, particularly during the summer growing season, which determine these three sections are rainfall, temperatures, hot winds, and evaporation. The western section including the area west of the 30-inch rainfall belt is hazardous for soybean production. The central area bounded by 30-inch rainfall on the west and 35-inch rainfall on the east includes a section where soybeans may be grown successfully provided they are planted on soils of above average fertility. The section east of the 35-inch rainfall belt is the area most suitable for producing oil soybeans.

The average yield data for the western section indicates that one may expect frequent crop failures because of the very light summer rainfall and hot winds, particularly during July and August. This is

A soybean demonstration at the Oklahoma A. & M. College test plots. The author is fifth from left.



the time of the year when beans are normally setting blooms. This unfavorable weather condition causes shriveled and low oil content beans. Sections favored with irrigation may overcome these low-quality factors. Another serious problem encountered in the western section is the enormous damage annually caused by jack rabbits. The soybean plant is the "ice cream" crop for rabbits and the population is large enough to destroy a considerable acreage.

The central and eastern sections are more favorable for commercial bean production because of a higher rainfall during the growing season, lower maximum summer temperatures, and less damage resulting from hot winds. The average yield data for these two sections, particularly in Oklahoma and Texas, is dangerously low; however, the figures are not indicative of the

possibilities because a large percentage of the acreage has been planted on soils of low fertility. Many farmers in Oklahoma report 20 to 25 bushel average yields per acre when beans were planted on corn-land soils.

Missouri reports that ordinarily soybeans produce grain in the ratio to corn 1 to 3. This is the general ratio on a typical Missouri farm. Where the corn yield is 30 bushels per acre, the bean yield will be about 10 bushels per acre. This is due largely to the corn being grown on the best land on the farm and the beans on the medium or poorer soils. Farther eastward in that state, where it is customary to grow beans on land more comparable to the corn land in fertility, this ratio narrows to 1 to 2½ or even 1 to 2.

INTRODUCE NEW PLASM

This is a matter of primary importance in the soybean growing areas of the Southwest. Soybeans must compete with corn, cotton, and other cash crops which are normally planted on our best soils. If the soybean-per-acre income can be measured with other cash crop returns in dollars and cents per acre to the farmer, then the acreage will expand very materially.

The shift to oil-type beans now means that new germ plasm must be introduced into the southern growing sections. Realizing the need for new varieties of adapted high-producing oil beans for the Cottonbelt, the Department of Agriculture and the Regional Soybean Laboratory at Urbana, Ill., in cooperation with the state experiment stations, inaugurated in 1943 a regional soybean testing and breeding program for the Cottonbelt. This new experimental work is known as the United States Regional Soybean Laboratory testing program for the Southern states. A similar program was started in the central and northern states in 1942.

The soybean breeding station for the Cottonbelt is now located at Delta Branch Experiment Station at Stoneville, Miss. The purposes of this uniform and cooperative research work are: Uniform testing of varieties, strains and hybrids in the same zones of latitude; the introduction of new varieties and hybrids; the breeding of soybeans for specific sections; the testing of worthy genetic material for yield possibilities and date of planting, and a complete chemical analysis of all cooperative tests of the entire soybean growing section.

Since the inauguration of the cottonbelt project, several hundred varieties, introductions, and hybrids have been tested. All of the states included in this Southwest Regional Chemurgic clinic, except Colorado and New Mexico, are cooperating in the United States Regional testing program. The entire soybean-producing area of the United States has been zoned from north to south. Kansas, Missouri, and the northern part of Oklahoma and Arkansas have been placed in Region 4 and the states farther south in Regions 5 and 6. The results of this new research program have already proven very beneficial. Many old varieties which have been grown for several years have been replaced with new hybrids or introductions. For example, the Ogden variety has been outstanding in grain yields in practically every one of the Cottonbelt states. Several new hybrids have been tested and found far superior to the old varieties, not only for high average

yields, but also for adaptation and percentage of high-grade oil. This information is being called to your attention for the purpose of pointing out that the introduction of new soybean germ plasm will do much to build up the per acre yields of soybeans in the southwest. It is no doubt a fact that farmers who have tried growing soybeans in the past became discouraged and quit because they did not use the proper variety.

Chemical analysis of soybeans by Dr. James E. Webster, of the Oklahoma Agricultural Experiment Station, for the past ten years indicate that weather influences the protein, iodine, and oil content of soybeans in Oklahoma. In summarizing these data, he found that beans from the central and western sections of the state yield beans much higher in oil content and lower in protein content. In all probability the considerable greater rainfall is responsible for the higher oil content.

Results of experiments conducted at the Oklahoma Experiment Station and in different sections of the eastern part of the state clearly point out that soybeans respond to good soil building practices. Crop rotations, addition of organic material, application of lime and phosphorus, and other good soil treatments will help to increase the grain yields.

— s b d —

FALL MEETING OF OIL CHEMISTS

The 18th annual fall meeting of the American Oil Chemists' Society will be held in Chicago on October 25-27 at the Hotel La Salle, with J. J. Vollersten of Armour and Co. as general chairman. Papers will cover the technology and manufacture of edible vegetable oils, shortening, and margarine, soap, and paint and varnish oils.

The presiding officer will be Dr. Klare S. Markley, principal chemist of the Southern Regional Research Laboratory, New Orleans, who was elected president of the Society at the annual spring meeting in New Orleans.

Assisting Dr. Markley in plans for the meeting are the other officers: R. R. King, Sherman, Tex., first vice-president, and technical director of the Interstate Cotton Oil Refining Co.; S. O. Sorenson, Minneapolis, second vice-president, and director of the technical department for Archer-Daniels-Midland Co.; J. R. Mays, Jr., Memphis, third vice-president, and a member of the staff of the Barrow-Agee Laboratories; Foster D. Snell, Brooklyn, N. Y., fourth vice-president, and head of his own laboratories; and J. C. P. Helm, New Orleans, secretary-treasurer, and head of his own laboratory.

Dr. W. B. Hendry, of the Edwal Laboratories, Chicago, is program chairman. Other Chicago chairmen are as follows: hotel—J. P. Harris, of industrial chemical sales division, West Virginia Pulp and Paper Co.; publicity—H. L. Roschen, Swift and Co.; entertainment—G. A. Crapple, Wilson and Company; ladies—Mrs. W. D. Reid; and exhibits—Mrs. Lucy R. Hawkins, assistant secretary of the society.

— s b d —

Poor drainage in Webster County last year is estimated to have reduced the corn yield 400,000 bushels, oats 50,000 and soybeans 20,000.

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178 Million Bushels Forecast

A total national soybean crop of 178,558,000 bushels was forecast on August 1 by the U. S. crop reporting board. This compares with an August 1, 1943 forecast of 200 million bushels and 195 million bushels actually harvested.

A late planting season with excess moisture in much of the soy belt combined with drought conditions which began to develop in the area east and south of the Mississippi River in June and which are unabated as yet in many sections are responsible for the materially lower prospects for the 1944 crop.

The crop reporting board forecasts a national per acre yield of 16.5 bushels. This compares with an average of 18.1 bushels in 1943 and 18.7 in 1942. The total acreage forecast for harvest is 10.8 millions, about the same as that harvested in 1943.

August 1 crop estimates for the leading soybean states in bushels include: Illinois 67,158,000; Iowa 35,298,000; Indiana 23,580,000; Ohio 22,160,000; Missouri 10,260,000; Minnesota 2,717,000; Arkansas 2,400,000; North Carolina 2,392,000; Mississippi 1,275,000; and Michigan, 407,000.

ALABAMA

H. R. Albrecht, Alabama Agricultural Experiment Station, Auburn: Maturity somewhat earlier than normal. Yield outlook only fair. Moisture conditions currently good, but prolonged dry spell broken only in past week apparently has penalized yields. Percentage for hay uncertain for percentage of oil beans grown will be cut for hay to alleviate feed shortages, particularly in most northerly counties where large portion of Alabama crop grown.

ARKANSAS

Charles F. Simmons, extension agronomist, Little Rock: Beans slightly later than normal but serious drought has reduced growth much below normal. Yield outlook uncertain. Rains over most of state week of July 23 may partially offset earlier reduction in condition. Beans in some areas already beyond recovery. Frost after Oct. 15 would do little damage to maturity. Some beans already harvested for hay. Hay crops short and harvest for hay may be high.

Jacob Hartz, Stuttgart, Ark., for east central: Maturity about 2 weeks late. Yield outlook not very good because of severe drought. Moisture conditions bad. No rain since June 12. All of Arkansas needs good general rain. If we do not get it in near future crop will be very short.

CONNECTICUT

J. S. Owens, University of Connecticut, Storrs: Acreage 25-50% above 1943. Soybeans being sown for emergency hay crop. Perennial hays producing 60% normal crop.

ILLINOIS

A. J. Surratt, agricultural statistician in charge, Springfield: Maturity slightly later than normal as dry weather has resulted in slower than usual growth. Moisture conditions fair in northern section, adversely dry in central and southern Illinois. Slightly more than average would be caught by early frost as about 20% crop started late or with uneven germination. Rains ranging from $\frac{1}{2}$ to $1\frac{1}{2}$ inches July 25 were quite general over northern and central sections. In southern third or

less important soybean section rains ranged from $\frac{1}{4}$ inch to trace. Slow decline in condition checked and improvement will result at least temporarily in soybean prospects in important central section. Outlook in northern Illinois continues favorable with limited exceptions, mainly in Lee and Cook county areas. Conditions rather uneven with earlier and well rooted fields, also row beans making best showing. A fifth of crop which includes some earlier fields stunted by severe drought in southern Illinois varies widely from poor to thin stands and some failures that will be plowed under and sown to winter wheat this fall. Recent reports from over

state indicate about average condition for late July. 13% for hay.

Russell S. Davis, Clayton, for west central: Maturity 3 weeks late. Last one-third of planting thin stand and small. Balance okay. Moisture sufficient to date. September frost could catch one-third to one-half crop. 5-10% for hay. We have largest acreage ever in this section and should have big tonnage if crop matures.

J. C. Hackleman, Department of Agronomy, Urbana: Crop late planted but blooming nearly normally. Yield outlook for state as whole good. In southern one-third of state beans definitely injured. Plants very short and permanently damaged regardless of weather from now on. Moisture conditions very dry in south half of state until week of July 25. Rains then spotted. Still many locations suffering.

Frank S. Garwood & Sons, Stonington, for south central: Maturity from one week to 10 days late. Are experiencing one of driest seasons on record. Extreme dry weather retarding growth. If dry weather should extend through

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August, yields will be greatly reduced. 10% would be caught by early frost.

A. E. Staley Mfg. Co., Decatur, for central: Maturity averages one week late. Many fields blooming and some podding. Yield outlook somewhat under last year. Condition probably 78%. Moisture conditions very poor. Driest July for 10 years and crop hardly holding its own. Crop very uneven, some very late beans could be caught by frost but amount probably not large. While damage to soybeans in central Illinois not yet severe condition can deteriorate very rapidly if rain does not come soon.

INDIANA

K. E. Beeson, Indiana Corn Growers Ass'n., Lafayette: Crop condition highly variable. Slight relief occurred July 26 for severe drought covering much of Indiana. Small percentage for hay. Other hay crops gave excellent

yields although much hay has been used for midsummer feeding.

Peter J. Lux, State AAA, Indianapolis, for middle section: Maturity normal. Yield outlook about 20% down due to poor stands and dry hot weather during blooming period. Moisture conditions serious. More and heavier rains needed in entire area. Not a high percentage would be caught by early frost. Less than 3% for hay.

J. B. Edmondson, Clayton, for south central: 95% in rows and cultivated.

Ersel Walley, Walley Agricultural Service, Fort Wayne, for northwest Ohio and northeast Indiana: About 30% crop earlier than normal, 70% later due to late planting. Moisture conditions very hot and dry. Early beans hurt and yield will be only fair. Late beans can be good crop only if rain comes soon. Drought situation critical. Most beans should mature before early frost. Some going to alfalfa drying and grinding mills.

IOWA

I. J. Johnson, Farm Crops Dept., Ames: Maturity week to 10 days late. Yield outlook good. Moisture conditions normal. Stands uniformly good. Late planted beans have made excellent growth. 5% for hay. 10-15% would be caught by early frost.

Howard L. Roach, Plainfield, for northeast: Maturity 80% normal. Yield outlook 20 bu. Moisture conditions fair. 35% would be caught by early frost. 25% for hay.

A. J. Loveland, State AAA, Des Moines: Maturity 90%. Yield outlook good. Moisture conditions excellent. 10% for hay. 10% would be caught by early frost.

KANSAS

Kansas state crop report: Soybeans making remarkable growth and show prospects for good yields in eastern Kansas.

E. A. Cleavinger, extension division, Kansas State College, Manhattan: Maturity 100% normal. Yield outlook excellent. At present largest yields of last several years may be expected. Growing conditions have been almost ideal. Beans were planted at about maximum time and moisture conditions have been excellent. Fields clean of weeds, have heavy dark green foliage.

MICHIGAN

A. A. Johnson, farm crops department, Michigan State College: Maturity well advanced. Yield outlook fair to good. Moisture conditions very dry, short vegetative growth. Very small percentage would be caught by early frost.

MINNESOTA

John W. Evans, Montevideo, for southwest central: Fields spotted at planting time varied. Some blossoming. Yield outlook fair. Some very good fields but a big portion slow. Moisture conditions good in subsoil but surface getting dry. 50% would be caught by early frost. 50% for hay. More early varieties being planted.

W. G. Green, Lakefield, for southwest: Maturity 10 days late. Yield outlook 12-16 bushels per acre. Our early planted beans are in good condition and should mature by Sept. 10-15. 25% may mature. Balance will be cut for hay.

MISSOURI

J. Ross Fleetwood, extension specialist, Columbia: Maturity possibly 10 days late due to late planting and drought. Yield outlook not quite so good as last year but better than 10-year average. Moisture conditions good in most sections. 10% would be caught by early frost. Approximately 20% for hay.

NEBRASKA

A. E. Anderson, agricultural statistician in charge, Lincoln: About 3% for hay. May be some abandonment of balance before harvest. Crop should mature unless frost unusually early. Outlook very favorable. Poor success last year due partly to inexperience and partly to season so wet first half of June. Farmers unable to eradicate weeds. Farmers also disappointed because those who raised soybeans un-

able to get meal from crushers. Moisture outlook unusually favorable.

Marr Industries, Fremont, for east central: Maturity 15 days late. Beans look excellent and are clean. Moisture conditions good. 50% would be caught by early frost.

NORTH DAKOTA

B. E. Groom, Greater North Dakota Association, Fargo: Crop coming very rapidly and making fine growth. During past week have seen many beautiful fields.

William J. Leary, extension agronomist, Fargo, for east: Maturity further advanced than normal due to higher temperatures. Yield outlook 15-25% higher than last year. Moisture conditions dry in some areas but mainly good where soybeans are grown. Very few would be frost-damaged by freeze at average date. Possibly 40% for hay.

OHIO

G. G. Mellroy, Irwin, for west central: Appears that crop will be 2 weeks late, especially if rain comes soon. Yield outlook not more than 80% normal if moisture available immediately. 1.72 inches rain month of June; .65 inch from July 1 to July 26. In my opinion rains will come soon and bean plant will grow again and add more and more pods. This will make maturity later. If we do not have an early frost there is chance for substantial recovery.

R. D. Lewis & D. F. Beard, Ohio State University, Columbus: Maturity normal. Yield outlook 20% below normal. Moisture conditions very dry during late June and July seriously reducing growth and yield prospects. Very few would be caught by early frost. 10-15% for hay.

W. G. Weigle, Van Wert, for west: Normal maturity. Yield outlook fair to good, but 70% in western Ohio facing acute drought conditions. However, good rains within 10 days would enable crop to make remarkable recovery. Many fields of early variety beans which were planted early are too far along to benefit much by rain unless it comes at once. Late varieties are not yet suffering as much but will soon need rain badly.

RHODE ISLAND

R. S. Shaw, Rhode Island State College, Kingston: Maturity normal. Yield outlook reduced 20-30%. Moisture conditions poor. Very dry spring and summer. 100% for hay and silage.

WEST VIRGINIA

R. J. Friant, extension agronomist, Morgantown: Maturity normal. Yield outlook normal. Moisture conditions normal to dry. 95% for hay.

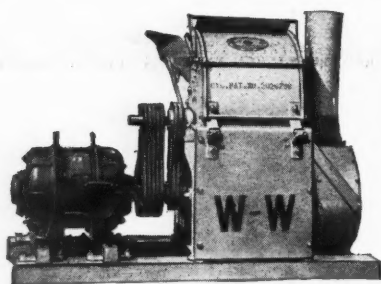
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NOW IS TIME TO PREPARE

"It isn't too early to start urging the railroads to prepare for an adequate supply of cars to move the 1944 soybean crop; the experience of 1943 should be long remembered for the loss and inconvenience incurred," suggests J. E. Johnson, president of the American Soybean Association, Champaign, Ill. "Storage facilities have increased over 1943; elevators built concrete tanks, no corn on hand and very little oats; the fourteen million dollars worth of steel bins can be made available for storage if needed.

"It isn't too early to remind those in responsibility that the large producing states who furnish the large volume of the total crop will expect that the crop remain where grown and not shipped to southern states as was the experience of 1943; this was a large factor in retarding the increased soybean acreage for 1944."

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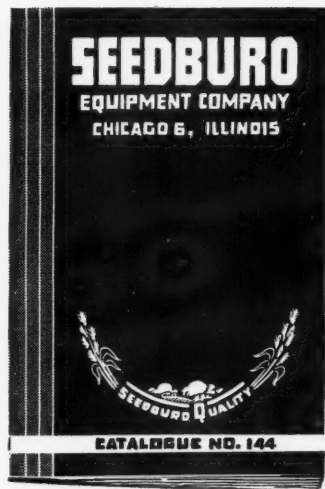
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The New Seedburo Year Book No. 144, just published, has many new features helpful to the seed and grain trades. For example, it includes a summary of the official U. S. Department of Agriculture instruction on grading grain. This section is written in every day, easy to follow language, and is useful as a reference book for men concerned with the grading of grain.



This Year Book contains more items than any previous issue . . . the total number of different products being 350. Some of the items newly added are: Seedburo temperature taking set, Calkins all-purpose seed treater, static eliminator, new Mangelsdorf germinator, Magni-Focuser, No. 309 Electric lantern, Randolph carbondioxide fire extinguisher, Complete line of bag trucks and platform trucks, complete line of scoops, Eriez magnetic separator, Strong-Scott feeder, scalper, and Magnetic separator, unit sack cleaner, sack baler, hand tacker, Seedburo portable blowers, and Tehr-Greeze fabric cement.

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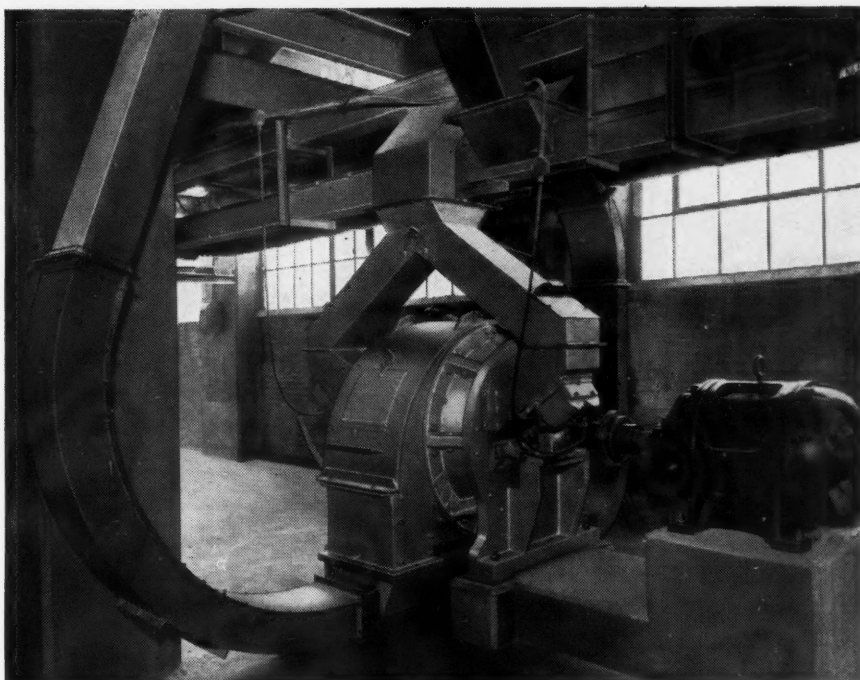
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Another Soy Cook Book

NO LONGER do we lack for soy cook books! Added to the truly excellent recipes books issued by the soy flour manufacturers and one or two books by general publishers is *The Soy Cook Book*, recently published by Greenberg of New York. Comprising 215 pages, the book sells for \$1.50.

The author is Demetria M. Taylor, who would seem to be well qualified to present her subject. She was associated for many years with Good Housekeeping Institute and was formerly the head of McCall's Magazine Kitchen. She is the author of *Day by Day Cook Book*, *Nutrition Handbook*, *Complete Book of Home Canning* and *The Ration Cook Book*.

The author treats soy cookery as an adventure, which is the way to approach a new food with limitless possibilities. "Chapter by chapter, you will meet all the soy food products, learn their characteristics, and find out how to use them in your own kitchen. Have fun!" she says in her introduction.

The author covers the uses of soy flour, grits and flakes, and also includes chapters for those who wish to go further afield in experimenting with other soy products. Including whole soybeans. At the back is a list of soy products with the names and addresses of firms making them.

A few recipes at random:

Macaroni Soybean Loaf

4 tablespoons fat	1 cup cooked elbow macaroni
4 tablespoons flour	1 tablespoon chopped onion
2 cups milk	1/2 teaspoon salt
1 cup grated cheese	pepper
3 cups cooked soybeans	

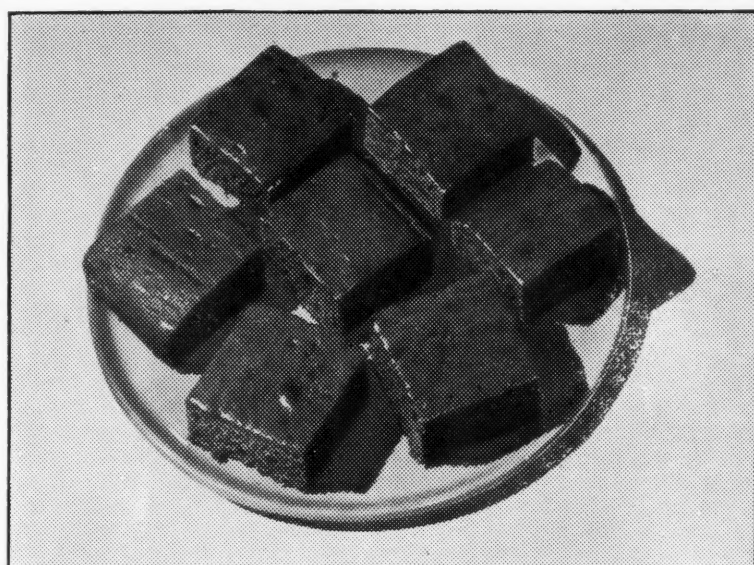
Combine fat, flour and milk into a white sauce. Add cheese and stir until melted. Combine other ingredients and place in a casserole. Cover with cheese sauce. Bake in a moderate oven. 6 to 8 servings.

Time: 40 minutes at 350 degrees.

Soybean and Vegetable Stew

4 slices bacon	dash cayenne
4 raw potatoes	2 1/2 cups cooked soybeans
2 large onions	2 cups canned tomatoes
1 green pepper	salt and pepper

Cut bacon in 1 inch pieces and cook in heavy skillet until nearly done; remove from pan. Slice potatoes, onions and green pepper into fat in skillet. Season with salt, pepper, and cayenne. Add beans and tomatoes. Top with bacon; cover and cook very slowly about 1 1/2 hours, adding liquid from soybeans or water if needed. Serves four.



A. E. Staley Mfg. Co.

Soy Honey Fruit Bars

Makes about 18 bars

1/4 cup soy flour	2 eggs
1/2 cup enriched flour	3 tablespoons melted shortening
3/4 teaspoon baking powder	3/4 cup honey
1/4 teaspoon salt	1/4 cup confectioners' sugar
3/4 cup chopped dates	
1/2 cup chopped nuts	

Sift soy flour and enriched flour separately. Measure and sift together with baking powder and salt. Add chopped dates and nuts. Beat eggs, add melted shortening and honey and blend well. Add this mixture to the dry ingredients and stir until thoroughly combined. Pour into a well-greased, eight-inch square pan and bake in a moderate oven (350°F.) for 35 minutes. Cut in strips about one inch wide and four inches long and roll in confectioners' sugar.

Or, cut in squares and serve with a topping of cream whipped with a little lemon juice. An excellent and quick dessert.

Scrambled Egg-Vegetable Roll with Soya

3 tablespoons water	3/4 cup drained, cooked peas, snap beans, or other vegetable
3 eggs	
3/4 cup soft bread crumbs	
1/3 cup soya flour mixed with 1/2 cup of water	1/2 teaspoon salt
	pepper

Add the 3 tablespoons of water to the eggs and beat until light and thick. Combine bread crumbs, soya-water mixture, vegetables and seasoning. Fold gently into the beaten egg. Pour into a little fat in a hot frying pan and cook slowly until the egg browns. Roll and serve.

Coffee Bread

1/4 cup sugar	2 eggs
1/2 cup fat	3 3/4 cups enriched flour, about
1/2 teaspoon salt	1/4 cup low-fat soy flour
1 cup scalded milk	
1 yeast cake dissolved in 1/4 cup lukewarm water	

Add sugar, fat and salt to scalded milk. When lukewarm, add dissolved yeast cake and egg. Combine flours. Add enough to make a stiff batter. Cover and let rise until mixture doubles in bulk. Cut down, beat thoroughly, and spread evenly in 2 greased, round layer cake tins. Sprinkle with nut mixture, let rise, and bake 40 minutes, beginning with hot oven (450 degrees) and

decreasing 10 minutes to moderate (350 degrees).

To make topping stick on, brush the surface of the dough with honey or corn sirup and spread the topping over and pat down.

Nut Mixture For Coffee Bread

4 tablespoons sugar	1 cup soft, stale bread crumbs
1 1/2 teaspoons cinnamon	4 tablespoons melted butter
4 tablespoons soy grits	

The soy grits may be soaked first, but they can be used without the preliminary soaking.

Soy Orange Rolls For luncheon or tea

1 cake compressed yeast	2 beaten eggs
1 1/2 cups lukewarm water	1 1/2 teaspoons salt
1/4 cup orange juice	2 tablespoons butter
grated rind of 1 orange	1 1/4 cups soy flour
1/2 cup honey	2 3/4 cups white flour
	3 tablespoons wheat germ

Dissolve yeast cake in the lukewarm water. Add other ingredients, stirring in the flours last. Knead until smooth. Set to rise in a warm place until doubled in bulk. Knead well and shape into rolls, let rise until doubled. Bake at 400 degrees for 20-25 minutes.



GRITS AND FLAKES



FROM THE INDUSTRY

D. Breese Jones of the Agricultural Research Administration contributes an article to the June issue of *The Agricultural Situation*. His conclusion is this: Soybean and peanut proteins are remarkably effective for supplementing the proteins of wheat. Addition of small proportions (5 to 15 parts) of soybean or peanut flour to wheat flour (95 to 85 parts) produces mixtures from which bread can be made having from two to three times the protein value of bread made from wheat flour alone. This effect is of great significance in relation to post-war relief, since a large part of Europe's diet will consist of wheat from surpluses from Canada, Australia, Argentina, and the United States.

A vacation after twenty years of continuous service in the feed business is the announced plan of C. F. Marsh, of Fort Wayne, Indiana, in connection with his resignation as general sales manager of McMillen Feed Mills, division of Central Soya, Inc., of Fort Wayne. Mr. Marsh joined the McMillen organization during the first year of its operation, serving successively as district sales manager, division sales manager, and general sales manager. Geo. C. Thomas, vice-president of the Central Soya Co., will succeed Mr. Marsh as general sales manager of the firm.

O. N. La Follette, for the past five and one-half years field inspector for the Iowa

department of agriculture, has resigned to become executive secretary of the Feed Institute of Iowa, a statewide educational organization devoted to problems of livestock and poultry feeding. It was formed a year ago. Mr. La Follette has been actively interested in soybeans and a booster for the American Soybean Association for a number of years. His office will be at 803 Liberty Bldg., Des Moines.

The appointment of Harry R. Schultz as vice president of the Pillsbury Soy Mills division with temporary headquarters at the mill at Centerville, Iowa, has been announced by Philip W. Pillsbury, president of the Pillsbury Flour Mills Co., Minneapolis. Mr. Schultz, manager of the division since it was created in January, formerly was president of the Standard Soy Bean Processing Co., at Centerville, Iowa. Pillsbury's new solvent extraction plant at Clinton is nearing completion.

Pillsbury Feed Mills, Clinton, Iowa, has started building a \$500,000 soybean storage plant alongside the processing plant now under construction. The contract was let to Jones-Settelsater of Kansas City, Mo. The warehouse consists of 44 large concrete tanks and 30 concrete bins with a million-bushel capacity. It increases the Pillsbury investment at Clinton to more than three million dollars. The processing plant will begin operation about September 1.

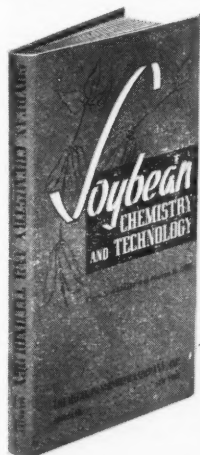
Fire believed to have been started by lightning destroyed the elevator and feed mill of J. Roach Sons, Inc., at Plainfield, Iowa, August 4, with an estimated loss of \$150,000. The elevator and mill were a complete loss, along with 8,000 bushels of wheat and oats and several tons of fish meal stored in the elevator. Howard Roach, one of the members of the firm, is vice president of The American Soybean Association.

R. E. Crone and Robert Crane have purchased the Dewine & Hamma firm at Sabina, Ohio, and it is now operated under the firm name of Sabina Farmers Exchange. Mr. Crone operates the Osborn Coop. Mill in Osborn and the Tremount Farmers Exchange in Tremount City, Ohio. He has been in the feed business for the past 22 years and is president of the Southern Ohio Grain Dealers Association.

The semi-annual meeting of the board of governors of the National Farm Chemurgic Council will be held at 8:30 a. m., September 13 at Urbana, Ill. All members of the board are invited to attend the Silver Jubilee meeting of the American Soybean Association, which will be in session at that time.

It is reported that Robert Graham, 89, a pioneer in soy flour development, is dead in Glasgow, Scotland. Mr. Graham founded the Veda Bread Co. in 1900. His travels took him all over the world and led him in America to carry on research and marketing work in flour and bread. It was in Austria that he introduced soy flour into a bread named "Manna."

Just Published!



Soybean Chemistry and Technology . . .

by KLAIRE S. MARKLEY

Principal Chemist, Southern Regional Research Laboratory; Formerly Senior Chemist, U. S. Regional Soybean Industrial Products Laboratory

and WARREN H. GOSS

Senior Chemical Engineer, Northern Regional Research Laboratory; Formerly Senior Chemical Engineer, U. S. Regional Soybean Industrial Products Laboratory.

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Here is a timely book to meet the tremendous demand for up-to-date facts covering the chemical and technical aspects of the versatile oriental soybean. The clarity and thoroughness with which it is written reflects the authors' wide knowledge, broad perspective and infinite patience for detail.

Although it is largely based on the experiments of the authors, it also comprises a valuable summary of numerous research contributions and references that have appeared up to 1943 in both European and American literature.

The machinery and equipment of soybean processing industries are described and illustrated in detail. A comprehensive list of soybean oil mills and manufacturers of equipment is also given. This is a "must" book for all those engaged in soybean production.

CONTENTS: Composition and Properties, Mineral Constituents, Proteins and Other Nitrogenous Constituents, Enzymes, Carbohydrates, Glycosides, Pigments, Vitamins, Oil and Oil-Soluble Constituents, Processing Soybeans, Production and Refining Phosphatides, Processing Soybean Oil for Food Uses, Literature Cited.

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THE SOYBEAN DIGEST

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WHAT IS STATUS OF SOYA BUTTER?

Butler Food Products of Cedar Lake, Mich., has obtained restraining orders which would prevent the Michigan State Department of Agriculture and the U. S. Collector of Internal Revenue from enforcing margarine regulations against the firm's product, "Soya Butter."

The company advertises "Soya Butter" as being an all-vegetable product, about 79 percent of it soy oil. H. L. Hoover, manager of the firm, claims that he is the victim of conflicting federal and state regulations, and that he cannot comply with one set of regulations without violating others. Hoover points out that while the Food & Drug

Administration prohibits his company from labeling the product oleomargarine without the addition of dairy products to it, the Bureau of Internal Revenue classifies it as oleomargarine for taxing purposes.

The firm claims that if it complied with orders of the Michigan agricultural department to label "Soya Butter" oleomargarine and for eating places serving it to be placarded, "Oleomargarine is served here," it would be subject to penalties under the federal Food, Drug and Cosmetic act.

F. M. Skiver, director of the Bureau of Dairying at Lansing, Mich., charges, "This product is colored in imitation of butter and has in several instances been sold as butter."

The cases are pending in circuit and U. S. district courts and are expected to come to trial soon.

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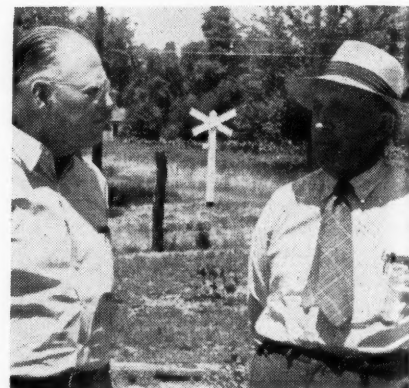
ILLINOIS FORMS BEAN CO-OP

As a step toward farmer-owned and directed soybean processing plants, the Illinois Agricultural Association's board of directors recently authorized the establishment of a statewide affiliate of the organization, to be known as the Illinois Milling Co.

With a number of counties contemplating the building of local soybean processing units as priorities on materials are secured, the Illinois Milling Co. was authorized for the purpose of marketing the oil and any excess meal produced by the affiliated county units. Business advisory service also would be afforded by the state company as well as direction in establishing uniform systems of office procedure and

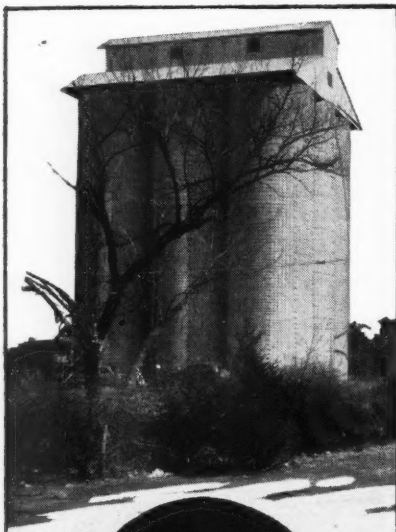
accounting. It is also contemplated that the statewide company would be able to furnish engineering service to the county member units through the hiring of a qualified man with background and experience in operating soybean processing units.

First county unit to be established is the Morgan Milling Co., which has been organized by the Morgan County Farm Bureau. The Morgan unit has purchased a 12-acre tract of land on the Chicago & Alton Railroad, southeast of Jacksonville. Plans are under way to construct a plant with a solvent type extractor of 10 ton per day capacity, and concrete storage bins of 75,000 bushel capacity.



—Photo I. A. A. Record

W. F. Coolidge, Morgan County Farm Adviser, and H. P. Joy stand on building site of Morgan Milling Co.



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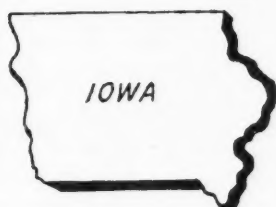
ALL OVER THE COUNTRY FARMERS SAY *IT PAYS BIG TO INOCULATE WITH...*



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WASHINGTON DIGEST

By PORTER M. HEDGE

Washington Correspondent for
The Soybean Digest

Changes In WFO-9

War Food Administration is putting its protein meal distribution order (WFO 9) into the repair shop for a slight remodeling to fit its program for expected heavier oil seed demands this fall and winter.

In addition to the recent amendment forecast here last month, two other changes are being planned.

One would require that set-aside meal which has been allocated to states and has found no buyer before midnight of the 15th of each month be turned back to the processors and distributed as they see fit. The September set-aside, incidentally, will be continued at 20 percent.

Officials also are making preliminary drafts of a plan, announced last spring, to give soybean growers priority on meal for their minimum livestock needs or for a percentage of their crop. This would apply to 1944-crop soybeans. The plan hasn't "jelled" yet, and won't be coming along for several weeks at the earliest.

In general, officials describe the protein meal situation as "loose" in all areas except for isolated "tight" spots where dry weather has increased demand. Tightness is reported to be developing in the drought-hit areas, particularly in Tennessee and Kentucky.

With cottonseed not yet moving, demand for meal is expected to increase before long in the southern states. Later this fall demand will strengthen in the corn belt, soybean producing states, and WFA suggests that feeders who can lay in early supplies.

Here are the four major provisions of the amendment to WFO 9 issued this month:

1. Any mixed feed manufacturer in business before Dec. 18, 1943, is entitled to a minimum yearly use of 60 tons of protein meal for mixed feed in 1944. WFA says "This provision will aid small feed manufacturers, relieve them of quota provisions up to the 60-ton minimum, and will simplify administration of the protein meal order."

2. If urea was used in the making of mixed feed during 1942 or '43, it may be included in the computation of a feed mixer's protein meal quota for 1944—at the rate of three tons of protein meal per ton of urea. However, urea will be counted

against the mixer's quota at the same three-ton rate.

3. Meal used in the third quarter for manufacture of cubes and pellets containing not less than 30 percent protein for range feeding in excess of the average so used during the 1942-'43 base period will not apply to a mixer's quota limit during the year. This is aimed at anticipating winter range needs, filling them early, making more proteins available for other areas when demand picks up this fall and winter.

Inventory Reduction

War Food Administration's Office of Distribution has had under way for several weeks an inventory-reduction program to clean up old but still useful stocks, and to prevent getting caught with market-burdened some surpluses after the war.

General procedure followed to date has been to release these stocks to the original vendor and return them to normal civilian trade channels. If the original vendor doesn't want them, they go to another distributor in the same trade.

A small lot of soy flour—around 45,000 pounds—is now listed for turnback into private trade. However, Distribution officials deny a recent report that government-bought soy flour is not moving, that it's rapidly deteriorating in storage, and that large quantities might have to be disposed of as animal feed.

Soy flour stocks on hand June 1 are reported at 97,727,192 pounds. Of the total, 1,607,000 pounds have been consigned for programs in effect, leaving about 96,000,000 pounds in stock.

Office of Distribution officials defend their buying operations on grounds they have to buy far in advance of actual use, must take into account at time of purchase probable military, export and other requirements, and cannot be held accountable for unforeseeable shifts in the military situation which might raise or lower demand.

What About 1945 Goal?

There's a strong persistent under-current of end-of-the-war talk running through Washington this month. The White House frowns on official optimism about end of the war.

But under the surface, high WFA officials are showing some concern over the problems of maintaining farm prices at levels pledged in the Steagall Act by Congress, of disposing of food stocks, and of continuing high production after the war.

Crop goals for 1945 are being delayed as long as possible. A return of crop adjustment programs in some form by 1946 is freely predicted. Earlier estimates of post-war European food demands are being revised downward all along the line. The "pipe-line of food" to Europe, which took about a year to fill, is now packed, and needs only now to be replenished as it is used up at the other end.

An automatic reduction of soybean acreage from the high levels of the last two years is expected by most farm officials here because of a natural desire of farmers to return somewhat nearer to normal crop rotations. If the current trend of end of the war thinking continues, some further reduction might be called for in next year's goals.

Goals for 1945 will depend on military progress. If Europe is cleaned up this year, as many expect, a lower soybean acreage probably will be sought. Thus far, however, it is all speculation, and nothing has been settled in the minds of War Food officials—but the trend is worth noting.

Machinery Supplies

Supplies of farm machinery will again be tight this fall, but soybean growers may find the situation a little easier than a year ago.

WFA officials report that all-around tractors and small combines are "pretty well up to production schedules." Corn pickers—and most machines requiring chain—will again be hard to get.

The farm machinery officials point out that because production may be up to schedule doesn't mean a farmer can walk into his local dealer's office and buy the machine he wants. The production schedules were based only on estimated minimum requirements.

But there will be slightly less red tape to go through in getting some types of machines from here on out. Only 19 types of equipment, compared with 31 last year, will

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be rationed during the current season.

Nine of these types will be subject to both state and county ration quotas. They are: Combines, corn binders, corn pickers, manure spreaders, mowers, side-delivery rakes, hay loaders, pickup balers, and tractors.

Berger's Turnover

Walter C. Berger, head of WFA's Feed Management Branch, has had a rapid turnover of protein consultants in recent months. Latest addition to his staff is J. G. Nellis, a Chicago feed broker, who is replacing Robert G. Houghtlin, who recently returned to Ralston-Purina Co. The post is the one held last winter and early spring by Ken Matlas of Staley Co., Decatur.

The Fats, Oils and Dairy Products

Branch of OPA's Food Rationing Division also has a new boss—Eugene W. Brockenbrough of Charlotte, N. C.

Fats and Oils Allocations

Third quarter allocations of fats and oils for manufacture of margarine total 131,000 pounds, WFA announced this month. The total 1944 allocation for margarine is 547,200,000 pounds.

Civilian allocation for the third quarter amounted to 103,000,000 pounds, but 17,000,000 pounds were carried over from unused previous allocations, making a total available for civilian use of 120,000,000 pounds.

This period's allocation for export amounted to 27,500,000 lbs., with less than half a million pounds going to the military.

Pending Bills

Congressman John Flannagan of Virginia, acting-chairman of the House Agriculture Committee, told *The Digest* shortly after Congress reconvened that he was "optimistic" over favorable action during this session on the Fulmer Bill (H. R. 4911) providing for crop insurance in 1945. The bill would permit limited "trial insurance" on soybeans in selected counties.

The Smith Bill to reduce federal taxes on margarine has bogged down in committee, and isn't likely to be reported out.

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PROCESSING SITUATION

(Continued from page 8)

per bushel as compared with \$0.37 allowed modern screw press equipped mills, or \$0.03 more per bushel. This means that these solvent extraction plants are receiving \$0.119 per bushel less for processing soybeans than mills using the most modern type of screw press.

This does not mean, however, that mills using the solvent extraction method are now receiving smaller net returns. It does indicate something of the competitive situation that may exist once all price controls now confronting processors are removed. With the extensive research now being carried on in connection with solvent extraction methods the costs of mills using this process may be brought to a level with or even below those using screw press equipment.

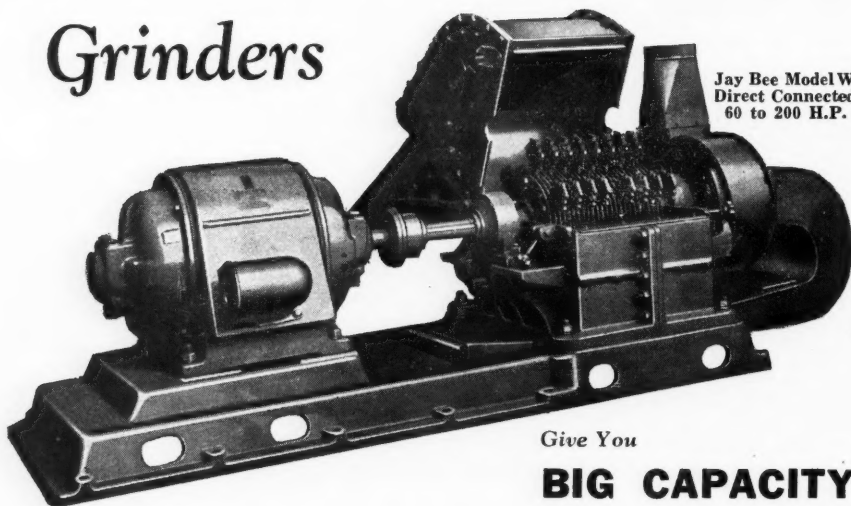
The above figures are based upon a price for oil of \$0.1175 per pound and \$45.00 per ton for bulk meal. Since the gross income received per bushel processed by each of the two methods depends upon the actual and relative prices of oil and meal, another comparison is made using average prices for the 5-year pre-war period 1937-41. During this period domestic crude soybean oil in tank cars at midwestern mills averaged \$0.675 per pound and 41 percent soybean meal in carlots at Chicago \$30.99 per ton. Using these prices and a yield of 10.5 pounds of oil and 45 pounds of meal for the solvent process and 8.9 pounds of oil and 47 pounds of meal for screw press mills there is an income advantage of approximately \$0.08 per bushel for the solvent mills. Depending upon relative processing costs the net advantage of the solvent method over the screw press method would be either more or less than \$0.08 per bushel.

Another adjustment problem that will be confronting the industry in the post-war period is that of the small versus the large mill. With the recent improvements in the smaller type solvent plants the relative advantage of the larger mills has been reduced in comparison with pre-war years when the only satisfactory small mills available were of the screw press or hydraulic type.

Attention will also need be given the matter of concentration of processing capacity at certain points. At present some locations have a much larger capacity than can be justified on the basis of economies of size of plant or proximity to production areas and outlets for meal and oil. If the greatest economic advantage for producer, processor and consumer is to be had equitable freight rate and pricing methods must prevail throughout the area in which the processing industry is located. If this is to be achieved adjustments will have to be made in the post-war period.

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IN THE MARKETS

● **JUNE FOOD DELIVERIES.** June deliveries of food and other agricultural products under lend-lease and other war programs totaled 806,942,749 pounds—about 24 percent less than deliveries in May which amounted to 1,060,963,642 pounds, the War Food Administration said today.

Deliveries at shipside for the allies in June amounted to 658,116,418 pounds or 82 percent of total June deliveries, compared with 857,870,924 pounds or 81 percent in May. These lend-lease deliveries were divided as follows: Dairy and poultry products, 18 percent; meats, 27 percent; fats and oils, 10 percent; grain products, 17 percent; fruits and vegetables, 13 percent; sugar, 9 percent; special commodities, 5 percent; cotton, 1 percent; and tobacco, less than 1 percent.

Destinations of June deliveries were: British Empire, 58 percent; Russia, 32 percent; and other claimants, including Greece, North and West Africa, and the French Committee of National Liberation, 10 percent.

Commodity	June	January 1, Through June 30, 1944
Oleomargarine	6,577,263	39,142,127
Shortening	751,357	3,782,506
Vegetable Oils	55,940,163	125,312,415
Soya Flour & Grits	1,372,000	64,657,750
Soybeans		3,849,600

CARIBBEAN EMERGENCY PROGRAM

Food exports to Puerto Rico and the Virgin Islands are made on a cash sale basis under agreements between the War Food Administration, the Department of Interior, and the insular Government. June deliveries were as follows:

Soybean Oil	176,000	626,000
Soybean Meal		1,598,000
Soybean Seed	18,000	18,000

TERRITORIAL EMERGENCY PROGRAM (HAWAII)

The War Food Administration ships food and other agricultural products to Hawaii on a cash sale basis.

Soybean Meal	600,000	7,495,600
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CASH SALES

Vegetable Oils	379,981	1,207,761
Oleomargarine	67,875	7,018,656
Shortening	660,066	2,251,722
Soybeans		160,000
Soya Flour	1,873,200	1,873,200

● **STOCKS OF SOYBEANS.** Soybean stocks of 35,792,000 bushels stored in all positions, on and off farms, on July 1, 1944, are reported by the Crop Reporting Board in its quarterly summary. This total includes 11,018,000 bushels on farms and 5,186,000 bushels in the interior mills, elevators, warehouses and other establishments, as estimated by the Crop Reporting Board, 11,082,000 bushels stored in processing plants, as enumerated by the Bureau of the Census, 4,682,000 bushels at the 46 terminal markets, as reported by the War Food Administration, and 3,824,000 bushels stored by Commodity Credit Corporation in their own steel and wooden bins. On April 1, 1944, stocks in these positions totalled 109,857,000 bushels. Disappearance during the quarter, April 1 to June 30, 1944, therefore, was 74,065,000 bushels. Stocks in all positions on July 1, 1943, amounted to 47,386,000 bushels.

Crushing of soybeans for oil during the quarter April 1 to July 1, 1944 amounted to 36,815,000 bushels, according to the Bureau of the Census. This quantity is only 89 percent of the 41,236,000 so processed in the same period in 1943, with each of the 3 months running below the corresponding month last year. Some of the stocks reported, especially in interior plants, and warehouses are in positions where they are available for feeding or for preparation of mixed feeds, but the bulk of the current stocks is apparently available for processing.

STOCKS OF SOYBEANS, JULY 1, 1944, WITH COMPARISONS

Position	July 1, 1943	April 1, 1944	July 1, 1944
THOUSAND BUSHELS			
On Farms	13,744	40,428	11,018
Interior Mills, Elevators & Warehouses	5,085	17,262	5,186
Processing Plants	17,246	35,203	11,082
Terminal Markets	2,864	12,790	4,682
Steel & Wooden Bins	8,447	4,174	3,824
TOTAL ALL POSITIONS	47,386	109,857	35,792

AUGUST, 1944

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*Analysis of Soybeans
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STOCKS OF SOYBEANS IN MILLS, ELEVATORS, WAREHOUSES AND OTHER ESTABLISHMENTS 1/ JULY 1, 1944, WITH COMPARISONS

State	July 1 April 1 July 1			State	July 1 April 1 July 1		
	1943	1944	1944		1943	1944	1944
THOUSAND BUSHELS				THOUSAND BUSHELS			
Ohio	975	2,035	600	N. Carolina	5	130	6
Indiana	1,013	2,818	739	Mississippi	5	125	5
Illinois	1,750	6,230	1,665	Arkansas	10	53	16
Michigan	39	95	52	Ten States	4,823	16,679	4,985
Minnesota	48	120	68	Other States	262	583	201
Iowa	847	4,421	1,775				
Missouri	131	652	59	U. S.	5,085	17,262	5,186

1/ Excludes stocks in processing plants enumerated by the Bureau of the Census and stocks at 46 Terminal markets reported by War Food Administration.

● **SOYBEAN INSPECTIONS.** Inspected receipts of soybeans have decreased steadily for the past three months, with continued gradual decline in quality, according to inspectors' reports to the War Food Administration. June inspections were 2,185 cars compared with 2,874 cars in May, 3,709 cars in April and 5,066 cars in March. From October through June this season, inspected receipts totaled 78,864 cars compared with 66,815 cars for the same period last season.

Quality of the soybeans has been progressively lower each month since March, but is much higher than last season. Eighty-three percent graded No. 2 or better in June compared with 87 percent in May, 90 percent in April and 92 percent in March. Eighty-six percent graded No. 2 or better from October through June this season compared with 31 percent for the corresponding months last year.

Inspections of soybeans in June include truck receipts equivalent to about 35 cars.

● **OILFEEDS.** There has been little change in the soybean oil meal situation with production reported to be heavy at most crushers who are completing old contracts. No offerings were reported made by any of the trade, and while production has tapered off some from that of a few weeks back, demand is still in excess of the output. Linseed oil meal situation remains tight with the crushers that are operating also completing their old contracts, and no offerings of any size have been in evidence for some time. Production has been reduced and some plants have closed down for repairs preparatory to crushing new crop flax, which will begin around the first of next month.

● **STOCKS.** War Food Administration report of soybean stocks in commercial storage.

	1943	1944
July 11, bus	2,656,000	4,113,744
July 18	2,623,000	3,461,968
July 26	2,588,000	3,093,333
August 1	2,300,000	2,726,536
August 8	1,969,000	2,414,356

Approximately 51% of available commercial storage filled August 1 compared with 34.4% July 1 and 61.8% August 1, 1943.

● **STANDARD SHORTENING SHIPMENTS.** By members of Institute of Shortening Mfgs., Inc.

Week ending July 15, bus	7,410,973
Week ending July 22	7,763,302
Week ending July 29	8,375,529
Week ending August 5	7,576,217

Chilean imports of soybean oil, mainly from Europe and the Orient, declined from 4,184,000 lbs. in 1938 to 71,000 in 1941, reports Foreign Crops and Markets.

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